THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANCESCO CASTELLI and GIANPIERO INVERNIZZI

Appeal No. 94-4489
Application No. 07/857,216[1]

HEARD: May 7, 1997

Before JOHN D. SMITH, SCHAFER[2] and PAK, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

Francesco Castelli et al. (appellants) appeal from the examiner's refusal to allow claims 1 through 8, 12 through 20,

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[1] Application for patent filed March 25, 1992.

[2] Administrative Patent Judge Thiersten participated in the hearing but has retired. Administrative Patent Judge Schafer has been substituted. Note, In re Bose Corp., 772 F.2d 866, 227 USPQ 1 (Fed. Cir. 1985).

23, 24, 26 through 29, 44, 46, 47, 49 and 51.[3] Claims 1, 13 and 14 have been amended subsequent to the final rejection.

Claim 1 is representative of the subject matter on appeal and reads as follows:

1. A process for forming a compressible printing blanket which comprises:

dispersing a plurality of thermoplastic microspheres having a melting temperature of 135°C or above substantially uniformly throughout an elastomeric matrix;

applying at least one coating of said microsphere containing matrix at a substantially uniform thickness to a surface of a base fabric ply to form a coated base fabric ply; and

vulcanizing said coated base fabric ply at a temperature of 80-150°C for a time of between about 1 and 6 hours to substantially fix the position of said high melting thermoplastic microspheres within said matrix and form a compressible layer such that said microspheres provide substantially uniform compression characteristics to said layer.

Claims 1 through 8, 12 through 20, 23, 24, 26 through 29, 44, 46, 47, 49 and 51 stand rejected under 35 U.S.C. § 103 as unpatentable over the disclosure of Gaworowski[4].

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[3] The examiner has withdrawn the rejection of claims 9, 10, 21, 22, 45, 48 and 50 subsequent to the final rejection. See Answer, page 1.

[4] U.S. Patent No. 4,770,928 issued to Gaworowski et al. on September 13, 1988 (hereinafter referred to as "Gaworowski").

We have carefully reviewed the entire record before us, including all of the arguments advanced by the examiner and appellants in support of their respective positions. This review leads us to conclude that the examiner's rejection is well-founded. Accordingly, we will sustain the examiner's rejection for essentially those reasons expressed in the Answer and the Supplemental Answer. We add the following primarily for emphasis.

At the outset, we note that appellants have grouped the above appealed claims together. See Brief, page 4 and Reply Brief, page 1. Accordingly, we will focus on claim 1 only, the broadest claim on appeal. See 37 CFR § 1.192(c)(5)(1993).

In the Background of the Invention, appellants state (see specification, page 4, lines 15-24) that:

> More recently, it has been found preferable to produce printing blankets having a compressible layer comprising a cellular resilient polymer having cells or voids in the compressible layer formed with the use of discrete microspheres. It has been found particularly advantageous to produce a compressible layer by incorporating hollow thermoplastic microspheres in the polymer, as illustrated by Larson U.S. patent No. 4,042,743.

> These microspheres are resilient and thus impart good compressibility properties to the layer.

Appellants then go on to state (see the paragraph bridging pages 4 and 5 of the specification) that:

> However, in prior art methods of producing a compressible layer employing thermoplastic microspheres for a printing blanket, it has been found that the thickness of the compressible layer to be formed is not easily controlled since typical thermoplastic microspheres will melt at normal processing and vulcanizing temperatures. Since the microspheres melt before the vulcanization is complete, and before the compressible layer achieves a set structure, agglomeration of the voids created by the microspheres occurs, and size variations in the voids also occur. This can affect the overall performance properties of the blanket. Also, the variations in the sizes of the voids can weaken the printing blanket, causing it to wear out prematurely.

To avoid the melting of thermoplastic microspheres during vulcanization, appellants employ thermoplastic microspheres having a higher melting temperature, i.e., a temperature higher than vulcanization temperatures, in a process for forming a compressible printing blanket. Specifically, the claimed process requires employing “thermoplastic microspheres having a melting temperature of 135°C or above” and a vulcanizing temperature of 80-150°C . See claim 1.

Appellants acknowledge (Brief, page 5) that:

> The Gaworowski patent discloses a two-stage curing cycle in which the compressible elastomeric layer is cured in a first operation, thus fixing the microcapsules in set positions within the layer, followed by a second curing stage to form the laminate structure.

The Gaworowski patent also states (column 4, lines 50-64) that:

> [C]onventional resinous microcapsules that are known in the art may be used in the intermediate layer. Any microcapsules having the properties described herein will be suitable for use in the present invention. Microcapsules having a melting point of about 165°F. to 270°F can be used. Preferably, the microcapsules will melt at about 180°F. Some of the materials suitable for use in the microcapsules are phenolic resin, and thermoplastic materials such as polyvinylidene chloride. Preferably, the materials used in making the microcapsules will be thermoplastics. Examples of such materials are vinylidene chloride, methacrylate, polyvinyl chloride, acrylonitrile, and copolymers thereof. Preferably, a copolymer of acrylonitrile and vinylidene chloride will be used.

Although a vulcanization temperature of 110° to 170EF is specifically mentioned, the Gaworowski reference indicates that any “sufficient heat” can be used to vulcanize (cure) the layer. See column 5, lines 55-63. Sufficient heat embraces any temperature below the melting point temperature of the microcapsules. See column 8, lines 3-8. In other words, when the Gaworowski reference employs microcapsules having a

melting temperature of about 270°F (about 132.5°C), a vulcanization temperature used is below 132.5°C, which embraces the claimed vulcanization temperature.

The dispositive question is, therefore, whether the Gaworowski reference teaches, or would have suggested, employing thermoplastic microspheres having the claimed melting temperature of 135°C or higher. We answer this question in the affirmative.

Initially, we find that Gaworowski describes thermoplastic microspheres having a melting temperature of **about** 132.5°C
(270°F) which can be used in forming compressible printing blanket. See column 4, lines 50-56. The term "about" allows some tolerance, thus embracing the claimed microspheres having a melting temperature of 135°C. See e.g., In re Pappas, 214 F.2d 172, 176-77, 102 USPQ 298, 301 (CCPA 1954); In re De Vaney 185 F.2d 679, 683, 88 USPQ 97, 101 (CCPA 1950); compare also Titanium Metals Corp. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779
(Fed. Cir. 1985)(the closeness of the properties of the claimed and prior art products renders the claimed product

prima facie obvious). Moreover, appellants have not disputed the examiner's finding (see Supplemental Answer, page 2) that:

> High temperature thermoplastic microcapsules of the type claimed by the applicant were not only available at the time of the invention of Gaworoski et al. but were specifically disclosed for use in the printing blanket of Gaworowski et al.

Compare also Gaworowski's microcapsule material relating to copolymers of vinylidene chloride, methacrylate, polyvinyl chloride and acrylonitrile at column 4, lines 61-63, with appellants' microsphere materials listed at page 11, lines 1 and 2, of the specification. Accordingly, we agree with the examiner that it would have been obvious to employ thermoplastic microspheres having a melting temperature of 135°C with a reasonable expectation of obtaining a desired compressible printing blanket.

In any event, we note that the Gaworowski reference, like appellants, recognizes the importance of using thermoplastic microspheres and avoiding the melting of thermoplastic microspheres during vulcanization at conventional vulcanization temperatures in a process for making a compressible printing blanket. See column 2, lines 44-68. Upon recognizing the importance of using thermoplastic

microspheres and avoiding the melting of thermoplastic microspheres, we find that it is well within the level of one of ordinary skill in the art to utilize thermoplastic microspheres having higher melting temperatures than conventional vulcanization temperatures and/or utilize, as shown by the Gaworowski reference, lower vulcanization temperatures than the melting temperatures of thermoplastic microspheres. See In re Sovish, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985) (obviousness requires consideration of the level of one of ordinary skill in the art who is presumed to have skill); see also at page 7, lines 22-26, of the specification for the kind of high skill and significant knowledge imputed to one of ordinary skill in the art by appellants. It is no more than common sense to employ thermoplastic microspheres having a melting point temperature higher than conventional vulcanization temperatures to avoid the melting of the microspheres during vulcanization. Accordingly, we agree with the examiner that it would have been obvious to vulcanize thermoplastic microspheres having higher melting point temperatures, such as those claimed, at conventional vulcanization conditions, including the claimed

vulcanization temperatures. One of ordinary skill in the art would have had a reasonable expectation of avoiding the melting of the thermoplastic microsphere during vulcanization to form improved compressible printing blankets.

In view of the foregoing, we affirm the examiner's decision rejecting all appealed claims under 35 U.S.C. § 103.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

	JOHN D. SMITH
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Administrative Patent Judge	)
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	)
	) BOARD OF PATENT
RICHARD E. SCHAFER	) APPEALS
Administrative Patent Judge	) AND
	) INTERFERENCES
	)
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CHUNG K. PAK	)
Administrative Patent Judge	)

Appeal No. 94-4489
Application No. 07/857,216

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CKP/jrg

JENINE GILLIS

Appeal No. 94-4489
Serial No.
07/857,216

Judge PAK

Judge JOHN D. SMITH

Judge SCHAFER

Typed: 14 Jul 98
Revision: 16 Jul 98

DECISION: AFFIRMED

Send Reference(s): Yes No
or Translation(s)

Panel Change: Yes No

3-Person Conf. Yes No

Heard: Yes No

Remanded: Yes No

Index Sheet-2901 Rejection(s): _____

Acts 2: ____

Palm: ____

Mailed:

Updated Monthly Disk: ____

Updated Monthly Report: ___